



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

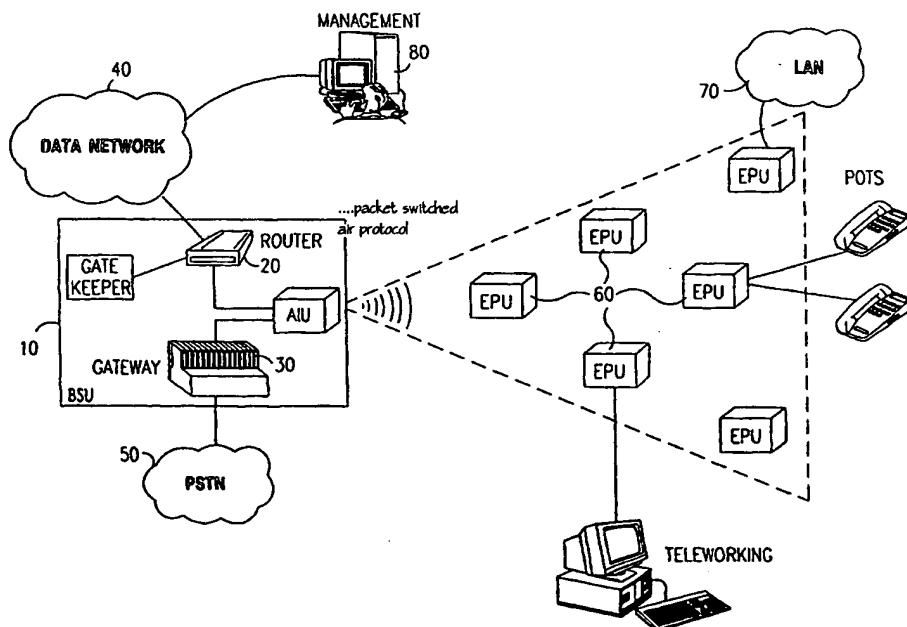
(51) International Patent Classification ⁷ : H04L 12/00		A2	(11) International Publication Number: WO 00/35145
		(43) International Publication Date: 15 June 2000 (15.06.00)	
(21) International Application Number: PCT/IL99/00666		(81) Designated States: AE, AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), DM, EE, EE (Utility model), ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).	
(22) International Filing Date: 7 December 1999 (07.12.99)			
(30) Priority Data: 127435 7 December 1998 (07.12.98) IL 127437 7 December 1998 (07.12.98) IL			
(71) Applicant (for all designated States except US): MARCONI COMMUNICATIONS ISRAEL LTD. [IL/IL]; Hamelacha Street 1, Industrial Zone, 71293 Lod (IL).			
(72) Inventor; and			
(75) Inventor/Applicant (for US only): SLOVIN, Zvi [IL/IL]; Hanasi Harishon Street 41/10, 76303 Rehovot (IL).			
(74) Agents: COLB, Sanford, T. et al.; Sanford T. Colb & Co., P.O. Box 2273, 76122 Rehovot (IL).		Published Without international search report and to be republished upon receipt of that report.	

(54) Title: WIRELESS LOCAL LOOP SYSTEM AND METHODS USEFUL THEREFOR

(57) Abstract

This invention discloses a wireless local loop system including a data network/PSTN gateway unit, at least one data lines, at least one base stations connected to the gateway unit via said at least one data lines respectively, a multiplicity of wireless subscriber units communicating wirelessly with the base station, each wireless subscriber unit comprising at least one interfaces to at least one host including a telephone host, each subscriber unit including an analog converter operative to translate incoming information in IP packet format into analog voice representation and to feed the analog voice representation to the telephone host, and to receive incoming analog voice information from the telephone host, to translate the incoming analog voice information into IP packet formatted information and

to feed the IP packet formatted information to the base station, and a packet switcher operative to perform packet switching on IP packets arriving from the base station connected to the subscriber unit, including routing IP packets for hosts other than the telephone host to those hosts and routing IP packets for the telephone host to the analog converter, and wherein the base station is operative to perform packet switching on incoming IP packets based on an IP destination address included in each the incoming IP packet, and wherein the gateway unit is operative to switch incoming data packets onto the data network, to translate incoming voice packets from IP packet format into analog voice representation and to switch the analog voice representation onto the PSTN.



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EE	Estonia	LR	Liberia	SG	Singapore		

PCT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C. 20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 16 August 2000 (16.08.00)	
International application No. PCT/IL99/00666	Applicant's or agent's file reference 36148
International filing date (day/month/year) 07 December 1999 (07.12.99)	Priority date (day/month/year) 07 December 1998 (07.12.98)
Applicant SLOVIN, Zvi	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

07 July 2000 (07.07.00)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 18 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Claudio Borton

Telephone No.: (41-22) 338.83.38

REC'D 28 NOV 2000

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference BO 43768	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/IL99/00666	International filing date (day/month/year) 07/12/1999	Priority date (day/month/year) 07/12/1998
International Patent Classification (IPC) or national classification and IPC H04L12/00		
Applicant MARCONI COMMUNICATIONS ISRAEL LTD. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 7 sheets, including this cover sheet.

- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 07/07/2000	Date of completion of this report 23.11.2000
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Kappatou, E Telephone No. +49 89 2399 7521 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IL99/00666

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).)*:

Description, pages:

1-39 as originally filed

Claims, No.:

1-20 as originally filed

Drawings, sheets:

1/11-11/11 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/IL99/00666

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application.
☒ claims Nos. 6-20.

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☒ no international search report has been established for the said claims Nos. 6-20.

2. A meaningful international preliminary examination report cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

- ☐ the written form has not been furnished or does not comply with the standard.
☐ the computer readable form has not been furnished or does not comply with the standard.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N) Yes: Claims 1-5

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IL99/00666

	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-5
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-5
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IL99/00666

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The subject-matter of claim 1 is new and involves an inventive step, Article 33(2)(3) PCT.
 - 1.1 Claim 1 refers to a wireless local loop system with
 - a. a data network/PSTN gateway unit,
 - b. data lines,
 - c. base station connected to the gateway unit via the data line and
 - d. wireless subscriber units. These are communicating wirelessly with the base station and comprising interface to a host, including a telephone host.
 - 1.2 Such a system is known from document D1: EP 0 766 490 A2.
 - 1.3 The problem to be solved by the present invention may be regarded as providing users with wireless access to a number of services of a voice and data network.
 - 1.4 This problem is solved by the following technical features:
 - e. The wireless subscriber units comprising
 - i. an analog converter operative to translate incoming information in IP packet format into analog voice representation and to feed the later to the telephone host, and to receive incoming analog voice information from the telephone host, to translate it into IP packet formatted information and to feed the later to the base station; and
 - ii. a packet switcher for packet switching and routing the IP packets.
 - f. The base station performs packet switching based on the IP destination address of the IP packets.
 - g. The gateway unit switches data packets to the data network and translates voice packets to the analog voice representation, before it switches it onto

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IL99/00666

the PSTN.

2. This solution cannot be derived from the prior art.
 - 2.1 Document D1 refers to an integrated radio communication system and mentions radio LANs, but it does not lead to the idea of an integrated data and voice wireless subscriber unit.
 - 2.2 Document D2: WO 97/12456 refers to a wireless local loop communication network for interconnecting LANs. It does not disclose voice services or connection to the PSTN.
 - 2.3 Document D3: WO 98/24224 refers to a general access system. It discloses several ways to make services available, for example voice over Internet. The combination of IP in the air interface and having voice transmitted over this IP-air-interface cannot be derived.
 - 2.4 The other cited documents do not deal with the problem posed and are less relevant.
3. Independent claim 5 corresponds to claim 1 and is therefore also new and inventive.
4. Claims 2 to 4 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

Re Item VII

Certain defects in the international application

1. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
2. Independent claims 1 and 5 are not in the two-part form in accordance with Rule 6.3(b) PCT, with those features known in combination from the prior art

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IL99/00666

(document D1) being placed in the preamble (Rule 6.3(b)(i) PCT).

3. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.
4. The sheets of the description and the claims do not have line numbering (Rule 11.8 PCT).

Re Item VIII

Certain observations on the international application

1. There is no antecedent definition for the term "**the** data network" in claim 1. The same applies to the term "**the** analog converter" and "**the** data network" in claim 5.
2. The phrase "hereby incorporated by reference" on page 1 of the description should be deleted as the application should be self-contained; such referenced documents are not regarded as part of the disclosure unless they contain matter essential to the invention, in which case the subject-matter in question would have to be incorporated into the description. This, however, is not the case. See also PCT Guidelines, II, 4.17.

PATENT COOPERATION TREATY

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 36148	FOR FURTHER ACTION		see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/IL 99/ 00666	International filing date (day/month/year) 07/12/1999	(Earliest) Priority Date (day/month/year) 07/12/1998	
Applicant MARCONI COMMUNICATIONS ISRAEL LTD. et al.			

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.
☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☒ **Unity of invention is lacking** (see Box II).

4. With regard to the title,

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

- ☐ the text is approved as submitted by the applicant.
- ☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 1

- ☐ as suggested by the applicant.
- ☒ because the applicant failed to suggest a figure.
- ☐ because this figure better characterizes the invention.

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL 99/00666

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-5,19 (claim 19 as far as relating to the 1st invention)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1-5,
19 (Claim 19 as far as relating to the first invention)

A wireless loop system and method, comprising a gateway, at least one base station, a multiplicity of subscriber units, an analog converter, and a packet switcher.

2. Claims: 6-20,
(Claim 19 as far as relating to the second invention)

A quality of service device and system.

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

The abstract is changed as follows:

line 2, after "unit" insert "(30)", after "stations" insert "(10)"
line 4, after "units" insert "(60)"
line 5, after "interfaces" insert "(130)"
line 17, after "network*" insert "(40)"
line 19, after "PSTN" insert "(50)"

INTERNATIONAL SEARCH REPORT

International Application No

PCT/L 99/00666

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04L12/28 H04L29/06 H04M7/00 H04M11/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04L H04M H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 843 494 A (LUCENT TECHNOLOGIES INC) 20 May 1998 (1998-05-20) abstract page 2, line 16 - page 3, line 5 page 3, line 40 - line 57 --- -/--	1,5

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

° Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

31 March 2000

Date of mailing of the international search report

20. 06. 2000

Name and mailing address of the ISA

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Authorized officer

Vaskimo, K

INTERNATIONAL SEARCH REPORT

International Application No

PCT/IL 99/00666

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>WO 98 24224 A (ERICSSON TELEFON AB L M) 4 June 1998 (1998-06-04) page 1, line 4 - line 22 page 2, line 18 - line 26 page 3, line 28 -page 4, line 6 page 5, line 4 - line 15 page 6, line 4 - line 15 page 7, line 5 -page 9, line 8 page 13, line 23 -page 15, line 26 page 19, line 7 -page 21, line 14 page 22, line 5 - line 27 page 23, line 22 -page 25, line 14 page 26, line 25 -page 27, line 2 page 30, line 16 - line 29 page 31, line 22 -page 32, line 15 page 37, line 4 - line 22 figure 7</p> <p>---</p>	1,5
A	<p>WO 97 12456 A (INTERTRADE COMPUTER CONSULTANT) 3 April 1997 (1997-04-03) page 1, line 10 -page 3, line 8 page 3, line 26 -page 7, line 1 claims 1,2 figure 5</p> <p>---</p>	1,5
A	<p>EP 0 810 761 A (SONY CORP) 3 December 1997 (1997-12-03) column 1, line 7 -column 3, line 18 column 6, line 23 -column 7, line 19 column 10, line 13 -column 11, line 7 figure 1</p> <p>---</p>	1,5
A	<p>EP 0 843 454 A (LUCENT TECHNOLOGIES INC) 20 May 1998 (1998-05-20) abstract column 1, line 5 -column 2, line 56 column 3, line 44 - line 49 column 5, line 1 - line 14</p> <p>---</p>	1,5
A	<p>EP 0 794 643 A (AT & T CORP) 10 September 1997 (1997-09-10) column 1, line 5 -column 2, line 42</p> <p>---</p>	1,5
A	<p>EP 0 766 490 A (NOKIA MOBILE PHONES LTD) 2 April 1997 (1997-04-02) page 2, line 3 - line 53 page 5, line 35 -page 7, line 39</p> <p>---</p>	1,5
A	<p>US 5 457 680 A (TRIMMER JR MERL A ET AL) 10 October 1995 (1995-10-10) column 1, line 8 -column 4, line 37 column 5, line 26 - line 54</p> <p>-----</p>	1,5

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

IL 99/00666

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0843494	A	20-05-1998	US 5914946 A CA 2216675 A JP 10190569 A	22-06-1999 08-05-1998 21-07-1998
WO 9824224	A	04-06-1998	SE 511236 C AU 3113697 A AU 3113797 A AU 3198697 A AU 5236698 A CN 1238881 A CN 1221530 A CN 1221533 A CN 1221534 A EP 0898837 A EP 0898833 A EP 0898838 A EP 0948860 A SE 9604409 A WO 9747127 A WO 9746073 A WO 9747119 A	30-08-1999 05-01-1998 05-01-1998 05-01-1998 22-06-1998 15-12-1999 30-06-1999 30-06-1999 30-06-1999 03-03-1999 03-03-1999 03-03-1999 13-10-1999 30-05-1998 11-12-1997 11-12-1997 11-12-1997
WO 9712456	A	03-04-1997	AU 7379496 A	17-04-1997
EP 0810761	A	03-12-1997	JP 9321894 A	12-12-1997
EP 0843454	A	20-05-1998	JP 10190743 A	21-07-1998
EP 0794643	A	10-09-1997	CA 2195140 A JP 10013468 A	14-08-1997 16-01-1998
EP 0766490	A	02-04-1997	FI 954639 A JP 9130405 A US 5956331 A	30-03-1997 16-05-1997 21-09-1999
US 5457680	A	10-10-1995	NONE	